

Tuberculous meningitis: starting with unilateral ptosis: a case report

Tuberculosis meningitis-unilateral ptosis

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Abstract

Tuberculosis is one of the human beings' oldest and most common infectious diseases. Tuberculosis has resurfaced in endemic societies in recent years, and there is a reported increase in global prevalence. The central nervous system (CNS) is affected in approximately 1% of tuberculosis cases. Adult tuberculosis has high morbidity and mortality due to meningitis, rapid progression, and neurological sequelae. It is an important health problem, because of the difficulties in diagnosis and treatment, and also because of its serious complications. Delay in diagnosis increases the risk of mortality and further complications. This article draws attention to the differential diagnosis of tuberculous meningitis in patients who suffer from ptosis complaints in daily neurology practice by presenting notable clinical features and the presence of tuberculous meningitis.

Keywords

Tuberculosis Meningitis; Ptosis

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Introduction

Tuberculosis is one of the human beings' oldest and most common infectious diseases. Tuberculosis has resurfaced in endemic societies in recent years, and there is a reported increase in global prevalence. Increased migration, the HIV epidemic, organ transplants, and weakened immune system due to nutrition disorders are thought to be the most significant causes of this problem. Tuberculosis of the central nervous system (CNS) is seen in approximately 1% of tuberculosis cases. Tuberculous meningitis is the most serious clinical form of extrapulmonary tuberculosis. Adult tuberculosis has high morbidity and mortality, due to meningitis, rapid progression, and neurological sequelae. It is an important health problem, both because of the difficulties in diagnosis and treatment, and also because of its serious complications. Delay in diagnosis increases the risk of mortality and further complications [1,2,3]. This article draws attention to the differential diagnosis of tuberculous meningitis in patients who suffer from ptosis complaints in daily neurology practice, by presenting notable clinical features and the presence of tuberculous meningitis.

Case Report

The subject is a 47-year-old male patient. One week ago, he developed ptosis of the left eyelid. He subsequently developed double and blurred vision in the left eye, contraction of the left side of his body and a loss of consciousness. His relatives brought him to the emergency department. A written informed consent was obtained from the patient in this case presentation.

According to his medical history, the patient had undergone surgery for aneurysm of the left arteria cerebri media approximately 15 years previously. There was nothing relevant in family history. The results of his physical examination were normal, except for a high fever (37.4°C). During his neurological examination, the patient was conscious and cooperative. His left eye was mydriatic and showed no reflex reaction to direct and indirect light, and it was concluded that his left eye had ptosis with limited up and down and inward vision. The results of his motor examination were normal, there was no pathological reflex and he had moderate neck stiffness. He was hospitalized in our clinic for cranial nerve involvement and seizure etiology. The examination was initiated for various etiologies, notably infectious (HIV, Syphilis), metabolic, paraneoplastic and vascular reasons. There was no pathology in routine blood and urine tests, except for the occurrence of 10 leukocytes in the urine examination. Blood and urine cultures were negative. Chest radiography was evaluated as being normal. During cranial magnetic resonance imaging (MRI), increased intensity on the pial surface of the brain stem of the FLAIR sequence, and leptomeningeal contrast involvement of the T1 sequence were observed (Figure 1). In electroencephalography, a paroxysmal irregularity characterized by slow ground activity and sharp-slow and sharp waves was detected. Levetiracetam 1000 mg/day was started. Cerebrospinal fluid (CSF) in the lumbar puncture had a blurry appearance. Opening pressure was measured as being 650 mmH₂O. A count of 220 leukocyte/mm³ (>50% lymphocyte) was detected. CSF protein, CSF glucose, and concomitant serum glucose were measured as being 310 mg/dL, 11 mg/dL, and 130 mg/dL, respectively. The results of CSF culture, HSV PCR, adenovirus PCR, and enterovirus PCR were negative. The patient was started on quad anti-tuberculosis treatment, with tuberculous meningitis diagnosis upon infectious diseases consultation, but there

was no significant improvement in the overall clinical condition. After the other eye also developed ptosis, an appearance concordant with hydrocephalus was observed in control brain MRI (Figure 2). External ventricular drainage was performed by the neurosurgery clinic. In his latest neurological examination, the patient was conscious, cooperative, oriented, had bilateral ptosis, his left eye was mydriatic, he showed no reflex to direct and indirect light, his motor examination result was normal and he had no pathological reflex. Since shunt treatment was done, we did not give steroid treatment to the patient. Nine months of tuberculosis therapy was planned. His clinical follow-up and treatment are ongoing.

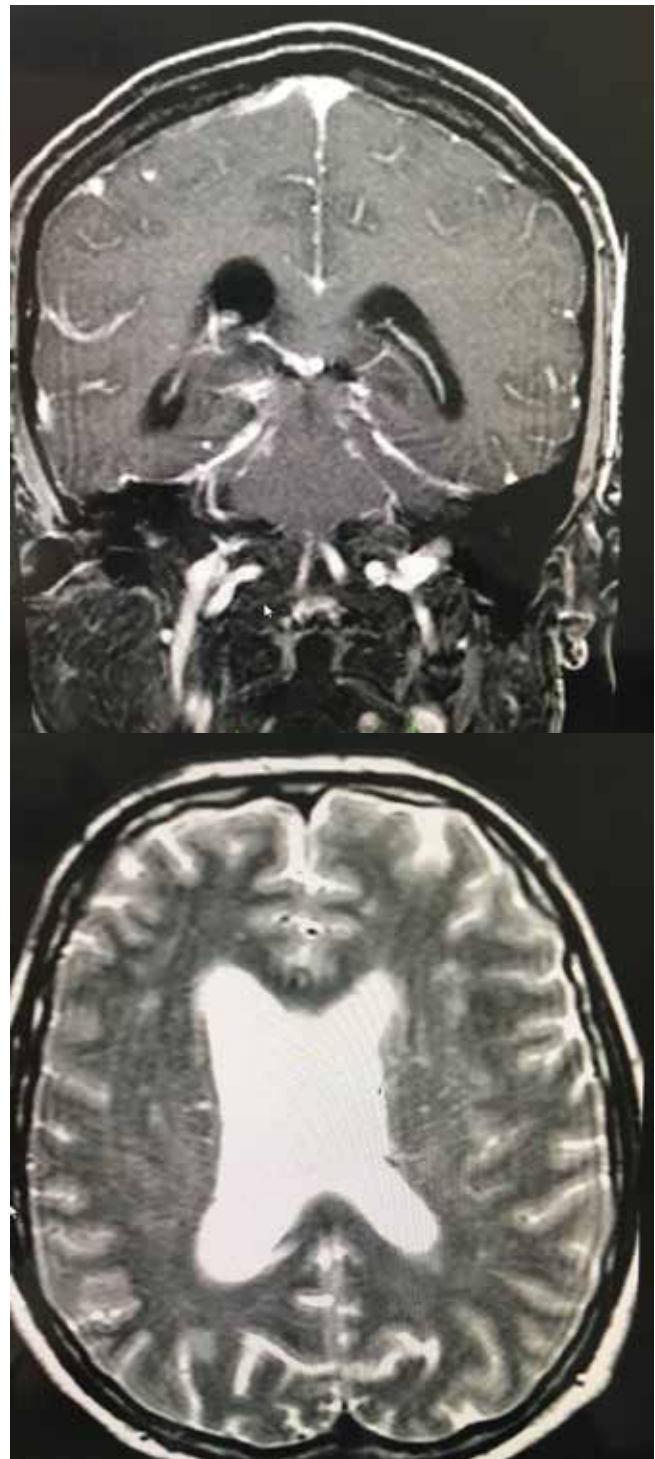


Figure 1. In contrast-enhanced T1 weighted cranial MRI images, widespread enhancements are observed in leptomeninges surrounding the bulbous (a). Hydrocephalus in the ventricular system and subependymal CSF resorption around the lateral ventricles in the T2 cranial MRI images (b).

Discussion

Tuberculosis is a significant global health problem. According to data provided by the World Health Organization, 10.4 million new cases of tuberculosis occurred worldwide in 2015. Tuberculous meningitis is the most common form of CNS tuberculosis. Although it generally develops with a hematogenous spread, it can also develop as a secondary effect to the rupture of subependymal or subpial foci, or by direct extension of CSF infection. Adult tuberculosis has high morbidity and mortality due to meningitis, rapid progression, and neurological sequelae. Characteristics of mortality are more distinctive in patients with advanced disease. Therefore, early diagnosis and treatment are vital [4]. Our patient did not have any systemic signs suggesting the early onset of tuberculosis. He was at “stage 2”, in terms of clinical neurology at the time of admission, and cranial complications developed at the time of diagnosis. The most significant clue in the diagnosis of tuberculous meningitis is a history of contact with a known case of tuberculosis. There was no evidence of tuberculosis in our patient’s family history. Differential diagnosis of patients should be conducted properly. Temporal arthritis, HIV, Legionella infections and slow virus infections may be mistaken for viral encephalitis, particularly in cases involving stroke and optic nerves [5,6,7].

At first, aneurysm operation, ptosis, and seizure in the medical history of our patient suggested a new cerebrovascular attack. As can be understood upon a meticulous examination of the defined characteristics of our patient, accompanying results and signs such as fever and meningeal irritation suggested meningitis.

In diagnosis, the gold standard is manifestation or production of the factor in CSF. However, this is not always possible. In 45-90% of the patients, M. tuberculosis is isolated in the culture. The factor was not seen or produced in CSF with our patient. Tuberculosis PCR was negative in CSF sample. However, the examination findings of CSF supported typical tuberculous meningitis. A typical radiological finding in tuberculous meningitis is an increase in abnormal meningeal enhancement. Furthermore, the increase in basal cisterns is generally distinctive. Also, in the Sylvian fissures of many cases, an increased enhancement in sulcal meninges on cerebral convexities can be observed. The MRI findings of our case were also typical. The radiological examination findings were evaluated with CSF examination findings and clinical data in forming a diagnosis.

Tuberculous meningitis is characterized by the slow progressive granulomatous inflammation of basal meninges. Inflammation of basal meninges causes the occurrence of various manifestations of tuberculous meningitis, such as hydrocephalus and cranial nerve paralysis. Tuberculous meningitis tends to particularly affect basal regions of the brain. Basal exudate that accumulates around the Sylvian fissure, basal cisterns, the brain stem, and the cerebellum causes hydrocephalus by blocking CSF flow. In our patient, the third ventricle and both lateral ventricles were dilated as secondary to distinctive involvement in basal cisterns. He also had communicating hydrocephalus. Moreover, resorption of CSF was observed around both lateral ventricles, depending on the increase in intraventricular pressure. For that reason, the patient was referred for immediate surgical treatment.

Twenty-five percent of the cases have cranial nerve palsies. The most frequently seen form is the sixth cranial nerve palsy. Less frequent are the third and fourth cranial nerves. Cranial nerve palsy is caused by the compression of the nerve trunk through

thick basal exudate. Increased intracranial pressure is another cause [8]. Our patient was characterized by unilateral ptosis during the early period. However, bilateral ptosis, total third cranial nerve, and optic nerve involvement were observed during the follow-up.

Diagnosis and treatment of tuberculous meningitis is difficult, even though it is a rare disease. Despite treatment, half of all patients die or only survive with severe neurological sequelae. A significant cause of this pessimistic picture is delayed diagnosis and therefore treatment [9].

Consequently, tuberculous meningitis is a form of extrapulmonary tuberculosis which is still significant in our country. Early diagnosis is of importance in cases with atypical onset. The clinical stage of the patient at the time of presentation, the time taken to start treatment and neurological complications are the most significant factors that affect the prognosis.

Scientific Responsibility Statement

The authors declare that they are responsible for the article’s scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.

Animal and human rights statement

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. No animal or human studies were carried out by the authors for this article.

Conflict of interest

None of the authors received any type of financial support that could be considered potential conflict of interest regarding the manuscript or its submission.

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